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ABSTRACT

Case studies involving learning styles and strategies in English as a second language are examined, based on previous research in which two English pilot tests were administered to a sample of Finnish University students. Those who scored high and low on the two tests were selected for structured interviews, where attention was directed to preference for structure in the learning situation, social and environmental elements, motivation, and responsibility, as well as specific learning and performance strategies in foreign language. The results were in accordance with conceptual level theory: in interview situations the high conceptual level cases considered different aspects of the questions, saw several alternatives, did not often give an either-or answer, and were more verbal and specific in their responses than were the low conceptual level cases. With regard to task performance strategies, many cases, notably those with rather low conceptual level, were hardly able to give a description. It also seemed that the poorer the performance of the cases, the more easily they resorted to the use of native language. Findings are also reported regarding: preference for structure in mathematics and foreign language, structuring acoustic material, and learning strategies in foreign language lessons. (SW)

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Department of Education, University of Helsinki
Head: Erkki A. Niskanen, Professor of Education
Fabianinkatu 28 A, SF-00100 Helsinki 10, Finland

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RESEARCH BULLETIN 59

Anna-Liisa Leino

LEARNING PROCESS IN TERMS OF STYLES AND STRATEGIES: CASE STUDIES

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Preface

The present study has been made possible by the co-operation of two Kerava schools. I am very grateful to the headmasters, guidance councellors, and students of these schools. I also want to thank Mrs. Arja Puurula, M.A. for the help I have received. I owe a debt of gratitude to Associate Professor Jarkko Leino for his valuable comments and expert advice. I am also indebted to the Finnish Academy for the grant I received.

Finally I wish to express my gratitude to Professor Erkki A. Niskanen Dean of the Faculty of Education, for accepting this study to the Research Bulletin series.

Helsinki, January 2nd, 1982

Anna-Liisa Leino

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1. Introduction

The present paper is a continuation of a previous study which outlined the theoretical framework for a research project in terms of styles and strategies (Leino 1980). The long-term goal of the project is to study the learning process of different school subjects within the framework offered by Hunt's B - P - E model. The first problem was how to specify component P in terms that would be relevant from the viewpoint of learning process. After a thorough review of related literature and research, it became evident that P should be approached by means of different cognitive styles or learning styles particularly those that could serve as accessibility characteristics. (The writer prefers the term "learning style" since the use of the term "cognition" has unnecessarily been restricted in Finland to refer only to the acquisition of knowledge, consequently omitting other important aspects of learning such as attitudes and emotions, for example.)

A further problem was that none of the existing cognitive/learning style-instruments had been used in Finland in educational research before. The only instruments available to the writer at the time were Hunt's PCM, an instrument of Conceptual Level, which has been investigated extensively as well as intensively within the framework of B - P - E model, and Witkin's Group Embedded Figures Test of field-independence/field-dependence which has also been thoroughly investigated for almost a quarter of a century in psychology, but whose educational relevance has not come out until quite recently. Both PCM and GEFT were pilot-tested on a Finnish sample. In addition to that, a learning style questionnaire was developed based on earlier studies and instruments but its reliability remained rather low and it did not yield much information. The aim of this paper is to complement the information of the pilot study at individual level; the focus will be on extreme individual cases selected on the basis of the test results; complementary information concerning various aspects of structure, social and environmental elements of learning, motivation and

responsibility as well as specific learning and task performance strategies will be obtained by means of interviews and available records. Detailed references to background theory, research, and literature will only be made when it is necessary from the viewpoint of this article. Otherwise repeating what was said in the previous article will be avoided.

2. Data-Collection Methods

2.1. Case Study

The methodology of this research will be descriptive and qualitative. Naturally such a soft-data approach has a limitation: it falls short of scientific precision; on the other hand, however, the demand for quantifiable variables and hard data may prevent investigating that which is significant in a phenomenon. In educational research, in particular, the focus of interest has been on different kinds of groups (schools, classes, experimental and control groups etc.). The results have been a reflection of the performance of the whole group and, consequently, may not apply to any single individual in the group. Group research does not yield any information of the variation occurring within the individual, either. A way of learning about pupils is to study them individually rather than as a group. This is necessary if there is going to be a science of human behavior rather than only a science of group behavior, as Johnson (1977, 316) has pointed out.

Case study offers a possibility to learn about a pupil as an individual. It is an intensive investigation of a unit of study, which attempts to gather as much relevant data as possible. Case study data can be collected by means of interviews, consequently these two methods have advantages and disadvantages in common.

Case study can naturally focus on other units of study as well, e.g. situations, groups, communities, institutions, cultures etc. As a matter of fact, the distinction between case study and group study is not very clear. A case study can involve a number of cases even though

they are each studied as separate units; a group study can equally well collect intensive information of each of its individuals. Case studies form one of the most common types of research designs in social science but in educational research they are encountered rather seldom (Black et al. 1976; Johnson 1977), which observation is true of educational research in Finland, too.

2.2. Interview

Interview is most often defined as an act or a process of communication or interaction with the purpose of eliciting information (e.g. Black et al. 1976; Good 1966; Jivén 1973; Smith 1975). Black et al. (pp. 355-357), however, consider definitions like these inadequate, because they do not include all the salient characteristics involved in interview. They enumerate the following four features as the most important ones in interview: 1. Questions are asked and responses given verbally. Interview has, in fact, been called an oral questionnaire (Bert 1977). 2. Information is recorded by the investigator rather than the respondent, which characteristic is shared by other data collection techniques as well. Interview does not have to take place on a face-to-face basis, but can, for example, be conducted over telephone. It usually takes place between two people, but again, this does not necessarily have to be the case. 3. The relationship between the interviewer and interviewee is structured in several specific ways. Interview is of transitory nature, it is a fleeting momentary experience for participants who are strangers to each other. Benny et al. (in Bert 1977) emphasize equality and comparability of such a relationship. The former means that the two participants behave as if their status were equal. The interviewer directs, on this occasion, their communication and the interviewee knows that he will not meet with any inconvenience on the part of the interviewer. The latter refers to the scientific demands placed on the data, which means that interview would be meaningless as social discourse. 4. There is considerable flexibility in the format of interview. This naturally depends on the type of interview that is used.

Interview as a measuring instrument is subject to the same criteria of reliability, validity and objectivity as any other measuring instrument.

Factors that affect the criteria are the qualities of the interviewer and interviewee, the nature of the problem to be investigated and the setting in which the interview takes place.

As to the interviewer, his actions are at least partly determined by his purposes, motives, attitudes and beliefs (e.g. Good 1966). Black et al. (1976) distinguish between subjective and objective characteristics of interviewers. The former include an inquisitive mind, which makes it possible for the interviewer to reorient himself quickly to newly appearing aspects of a problem, a facility for drawing together pieces of information, and a sensitivity to what needs to be done in the interview situation. The latter include such features as age, sex, race, and manner of dress and speech. The last-mentioned point is crucial since it may right away determine whether a subject consents to be interviewed or not. There is, however, no specific information available of the influence of the above variables on interviewer bias. In order to avoid it, the interviewer should manifest the same uniform patterns of behavior to all subjects, since even a small change in question wording or the tone of voice can cause differences in responses. The requirement of uniformity is, however, very difficult to satisfy. Even in cases with only one interviewer, there is variability in his sensitivity to what responses must be taken into account, what responses to encourage, whether a facial expression or tone of voice is worth noticing etc. A biased interviewer may also interpret and record similar answers differently from time to time (e.g. Johnson 1977; Runkel 1972; Smith 1975; VanDalen 1977).

The behavior of the interviewee is, as well, influenced by his purposes, motives, attitudes, beliefs (e.g. Good 1966) and knowledge, which should be given consideration in the forming of the questions. Oversimplified or overdifficult questions have a tendency to lower the motivation to communicate (Smith 1975). In addition to that, interviewees should be able to express themselves in understandable verbal form; those with limited communication skills are not suitable as subjects (Black et al. 1976). The reliability of information received through interview may be lowered by such factors as the subjet's awareness that he is the object of someone's study, his desire to make a good impression on the interviewer or his reluctance to co-operate (e.g. Good 1966; Runkel 1972).

The importance of establishing a friendly, non-threatening atmosphere is emphasized in many connections (e.g. Black et al. 1976; Cohen 1976; Good 1966; Kerlinger 1970). The behavior of a respondent in an interview situation is, however, determined by, at least, two components: task involvement and social involvement. The former refers to involvement with the questions and answers and the latter with the interviewer as a personality. The subject's responses deriving from social or interpersonal involvement will be biased. Validity should increase to the extent of task involvement on the part of the subjects (Good 1966, 239).

Interview is also affected by the nature of the problems and the setting in which the interview takes place. There are things people consider too private to be revealed to researchers. On the other hand, there are subjects who do not elicit much information no matter what the problem (Black et al. 1976). As to the setting, interviews are usually conducted in a private place with one person at a time so that he feels free to express himself openly. The manner of recording may, however, be a cause of bias in the situation. It should enable the interviewer to record notes quickly and accurately. Tape-recording would free him during the interview, and provide means of verifying responses later and also help him avoid omissions and distortions that can be made in written accounts of interviews. Written notes can be taken either during the interview or immediately thereafter. In either case the actual wording of responses should be retained (Bert 1977), which may however, at least in the latter case, prove almost impossible. Syrjälä (1980) used both tape-recording and written notes of interviews in her study, whose respondents were teachers. According to her (personal communication), the amount of information she received was obtained by written means alone.

The type of interview varies in terms of its degree of structure. An unstructured interview is flexible and open; the sequence and content of questions is completely in the hands of the interviewer, which means that the same questions may not be asked by different interviewers and those that are asked, may be worded in a different way. Interviewees are encouraged to give a free expression to their thoughts. According to VanDalen (1977) data-gathering can take place in such a casual manner that the respondent may not even know he is being interviewed. Kerlinger (1970) considers it very important that an unstructured interview should be as care-

fully planned as the structured one, it should not by any means be casual. Being casual and well-planned need not, however, be mutually exclusive. An unstructured interview has the advantage of having the spontaneity of an ordinary conversation and giving the interviewer an opportunity to explore various aspects of the problem in an unrestricted way. Among disadvantages could be mentioned the questionable comparability of the data, difficulty in quantifying them and waste of time when the interviewee has nothing or little to add to knowledge already acquired (e.g. Black et al. 1976; Smith 1975; VanDalen 1977).

A structured interview means that the interviewer has a schedule of questions prepared in advance. All persons being interviewed are asked the same basic questions in precisely the same wording, question order and, if possible, tone of voice. Even the same introductory and concluding remarks are used. High structuring reflects the attempt to present all interviewees with the same stimuli so that they are answering the same research instrument (Johnson 1977; Smith 1975). It has been pointed out that the subjects should have a common vocabulary if the stimuli are supposed to elicit a similar range of responses. Since this may not be the case with culturally heterogeneous respondents they should be interviewed in a less structured way. Structured interview makes it possible to collect quantifiable data and allows comparisons to be made between the responses. VanDalen (1977) warns, however, against the rigidity of this uniform method, which may prevent the investigator from probing in sufficient depth.

Quantitative methodology or "formal strategies" (Leino, J. 1978, 9-11) have been the prevailing ones in Finnish educational research for a longer period of time. Qualitative methods have only been used to complement the information obtained through quantitative methods. This tendency has been quite natural since many great educational reforms have been planned and carried out in Finland during the past twenty years. Information obtained through purely qualitative methods have been considered inadequate basis for large-scale decision-making in educational policy. Quite recently, however, more interest has been given to qualitative methods or soft-data approaches, which should not, however, mean softness in reporting the results. No matter what the methodology, quantitative or qualitative, or a combination of the two, the results should always be reported with adequate precision.

In spite of the weaknesses inherent in both case studies, which could also be called methods of reporting results, and interviews, it is the writer's opinion that these two data-collection methods are well on the way of becoming more common even in educational research. This view is based on the increasing demands on individualized instruction, which in turn is based on the realization of human variability in learning (individual learning styles, for example). Obviously information that can be used in solving problems of individualization can rather be obtained by means of case studies than group studies, which are a reflection of institutional uniformity and in which the researcher plays to the rule of large numbers.

3. Subjects

The subjects of the case studies were chosen from among those of the previous study in which two cognitive or learning style instruments were pilot tested on a Finnish sample to see how they worked in another cultural setting (Leino, A-L. 1980). They were Pragraph Completion Method (Hunt et al. 1978), a test of Conceptual Level, and Group Embedded Figures Test (Witkin et al. 1971), a test of field-independence/field-dependence. The subjects of this study were those scoring high and low on the two tests. High PCM group consisted of all those (N=5) who scored 2.1 or more and low PCM group of those (N=4) who scored 0.3 or less. (The mean of the entire original group was 1.36 and standard deviation 0.51.) The high GEFT group consisted of those (N=6) scoring the maximum 18 and the low of those (N=7) scoring 3 or less. (The mean of the whole group was 10.83 and standard deviation 4.56.) Since three of the students of the high GEFT group also belonged to two other groups (one to low and two to high PCM groups) the total number of students to be interviewed was 19. Changing the scores of either group would have meant a considerable increase in the number of students to be interviewed and thus exceeded the resources available for the study. One of the interviewees said she was in a hurry because of a test during the same day, which may have affected the reliability of her answers. Therefore her case will not be reported.

As can be seen from the foregoing the selected subjects were those who sharply delineate the phenomenon being studied. One of the reasons for

the lack of consistent research results concerning field-dependence/field-independence and the learning of mathematics, which is the most extensively investigated individual school subject in connection with learning styles, may be the fact that the groups of students representing different styles have not been differentiated sharply enough from one another (Leino, A-L. 1981).

4. Problem Areas

The problems are stated in the following, rather general terms: What kind of learning and task-performance strategies do students of differing styles use? What are these students like in terms of certain background variables such as school achievements, special difficulties they may have and family background. Strategy is defined as a combination of styles such as it described by a student in an interview situation or such as it appears while (s)he is performing the tasks.

Consequently the purpose is to carry out an intensive investigation of the extreme groups of the students who took the previously mentioned learning (cognitive) style tests. (High and low Conceptual Level will be abbreviated as HCL/LCL and Field-independence/Field-dependence as FI/FD.) The areas included are all based on relevant literature and research dealt with in the theoretical part (Leino, A-L. 1980). They are as follows: students' preference for structure, evaluation of one's ability to structure acoustic material, learning strategies of a foreign language lesson, social and environmental elements of learning, motivation, responsibility, and task performance strategies in foreign language.

5. Interviews

The structured interview had two parts (Appendices 1-2), the first consisting of questions concerning the strategies proper and the second of linguistic tasks. The first version of the questionnaire was pretested using two high- and two low-achieving students of the nearby

practice school. Ambiguities and inadequate wording were eliminated and the order of some questions changed. The pretest showed what the writer had, in fact, expected, namely, that one should avoid asking questions of learning in general. Students want to know "learning what?". Therefore the "what" was specified in questions number 6, 7 and 8. Questions were specified to concern mathematics and foreign language because these subjects differ from many of the other school subjects by being cumulative in nature: that which students learn to-day is based on what they learned yesterday (or last week, month or year). It is to be remembered that the interviews took place in Finnish; the English translation given in the Appendices may not fully cover the meaning.

The structured interview includes the following areas with the numbers of the questions given in the brackets:

1. Preference for structure in mathematics and FL (foreign language) (6 and 7)
2. Structuring acoustic material (5)
3. Learning strategies of FL lesson (8)
4. Social element of learning (4)
5. Environmental elements of learning (9)
6. Motivation (1, 2, and 3)
7. Responsibility (10)
8. Task performance strategies (tasks 1-5)

The interview questions of the first part are based on the questionnaire used in the previous study, the theoretical part of which provided the basis for it. Questions number 2 and 3 are, however, exceptions. The former concerning hobbies was included to help create of a friendly atmosphere between the interviewer and interviewee: people generally like to speak about their hobbies. In addition to that, it is reasonable to assume that styles might be reflected in the hobbies people have. The latter question was hoped to serve a similar purpose and, since field-independence/field-dependence has been found to be closely connected with people's career choice (see Messick 1976), it might possibly be noticeable in the career expectations and hopes even of this age group (average age fifteen).

The inclusion of questions number 10 and 9 are in particular influenced by the learning style system of Dunn et al (e.g. 1979), in which the

environmental (as well as physical) element is prominent. Concerning question number 8, it was considered necessary to try to create a situation, in which students would be strongly motivated to learn their homework. The highjacking situation seemed to work. It is the writer's impression that students really tried to give a true description of their strategies. The additional questions after some of the main ones were asked if the answers did not already include a mention of these things. The additional questions included in 8, which concern movement when learning one's homework, are based on Asher (1979). According to him the kinesthetic sense modality can significantly accelerate the assimilation of foreign language skills. This claim of his is based on empirical evidence concerning both children and adults.

The linguistic tasks concerned the foreign language (English). Students were asked to solve the problems by thinking aloud. They were told that the correctness of the answer is not the main concern but the steps they go through to arrive at an answer. Hosenfeld (1977) gave her students a short practice session in the techniques of thinking aloud before the actual interviews to make sure that they could "adequately" describe the strategies they used. Practice session was nor resorted to in this study for the following reasons: 1. The interviewees may be guided to answer in a certain, uniform way. 2. As a stimulus, the interview situation should be the same for each respondent, which would not be the case after a practice session, since some obviously need more time to be able to "adequately" describe their strategies than the others. 3. There is a danger of developing negative attitudes towards the interviews.

The problems and tasks are not meant to be a representative sample of the contents of the English studies the students have so far had. Having a representative sample would have increased the length of the interviews considerably and thus imposed on the good will of the interviewees and school personnel who made the study possible. The first three tasks are situational because such tasks can offer a variety of different possible answers; they also reflect Finnish foreign language curricula and teaching with the emphasis on situational and notional approaches. The last two tasks are very specific: they concern asking a question in English. This is often a special point of difficulty for

Finnish-speaking students because questions in Finnish are asked differently.

The interviews were carried out by the writer in February-March 1981, in the two schools (Leino, A-L. 1980). The practical arrangements were taken care of by the guidance counsellor, whose office was used. It was also during her own lessons that most of the interviews took place. They lasted from 20 to 35 minutes. At the beginning, each of the students was informed of the confidential nature of the interview; an attempt was also made to establish a friendly, non-threatening atmosphere. The language used by the interviewer was colloquial Finnish typical of the Helsinki area.

The interview material was collected with paper and pencil notes during the interview. This proved difficult, sometimes, because an attempt was also made to keep an eye-contact with the respondent while he answered. Eye-contact was considered important because, it shows the respondent that the interviewer is all the time interested in what he is saying, and it might also encourage open and frank answers. The answers were written down after each answer given by the respondent. The interviewer had a form with a blank space after each question for the answers to be written down. Taking notes during the interview may have disturbed the spontaneity of the dialogue; but, on the other hand, tape-recording would have done so, too, and perhaps to greater extent. An attempt was made to record the actual words or statements made by the respondents. When the respondent spoke a lot and very quickly, it was hard to remember the exact wording, abbreviations had to be resorted to, and maintaining legibility was sometimes problematic. As to the linguistic tasks, students saw them in written form as well as heard them in oral form. The interviewer wrote down their responses.

6. Results

The interview protocols were content-analysed. The most important part of content analysis is perhaps categorizing, i.e. the setting up of a workable category system. This was not, however, a large-scale problem in the present study because the structured interview that was used was a direct reflection of the background theory, previous studies and problem areas.

There were, however, a number of small-scale categorization problems within the different areas of the interview, in which themes and words were used as units of analysis. These problems will be dealt with below, as they occur, in connection with reporting the results.

Background information given in Appendix 3 is dealt with in Ch. 6.9. though it may be referred to earlier in relevant connections.

6.1. Preference for Structure in Mathematics and Foreign Language

As regards mathematics, some of the cases were clearly definable in terms of their preference for structure or no structure. They were as follows:

No structure	Structure	
Case 1,HCL	Case 2,HCL	Case 14,FD
Case 13,FD	Case 10,LCL	Case 15,FD
	Case 11,LCL	Case 16,FD
	Case 12,FD	Case 17,FD

A number of cases did not give a definite "either-or" answer to the question: some want first to try themselves and if the attempt is not successful, want instructions (Cases: 3,HCL and 18,FD), others pointed out that it is easier to have detailed instructions first (Cases: 5,HCL and 8,FI). There were still those who combined the two points of view saying that they learn better if they try on their own but it is easier with detailed instructions (Cases: 4,HCLFI; 6,FI; 7,FI; 9,FILCL). Case 17,FD, pointed out that he prefers structure in all the other subjects. too, except when writing an essay in the native language.

As far as foreign language is concerned the following cases expressed their view quite clearly:

No structure	Structure
Case 1,HCL	Case 8,FL
Case 4,HCLFI	Case 11,LCL
Case 6,FI	Case 13,FD
Case 9,FILCL	Case 15,FD
Case 10,LCL	Case 17,FD
Case 12,LCL	Case 18,FD
Case 14,FD	
Case 16,FD	

The following made some reservations as to their preferences:
Case 7,FI, and Case 2,HCL, want no instructions if they know what to write about; Case 3,HCL, pointed out that it is easier if one is told what to write about, when imagination does not work, particularly in the foreign language; Case 5,HCL, is against detailed instructions, because they make the essay like a list; she would however, like to get some key words.

Structuring is an important environmental variable that can be used to facilitate learning. It refers to the degree of organisation provided by the learning environment. Highly structured environments are largely determined by the teacher and the student has little responsibility, while in environments low in structure the student has more responsibility (Hunt e.g. 1985, 1979). Students differ in terms of the degree of structure they need and they also differ in terms of their preference for structure, as this study, for example shows. There may, however, be a discrepancy between the student's needs and his preferences, as Hunt (1975) e.g. has pointed out. In the following we will consider the cases in terms of their need for structure as determined by PCM (Hunt et al. 1978, p. 38).
(The pilot testing of the instrument on the Finnish sample showed the comparability of the results, Leino, A-L. 1980.)

The cases can be grouped as follows in terms of their need for structure:

Much 0.1-1.0	Some 1.1-1.4	Less 1.5-1.9	Little 2.0+
Cases: 7, 8, 9, 10 11, 12, 13, 17	Cases: 14, 15 16, 18	Case 6	Cases: 1, 2, 3, 4, 5

It has also been hypothesized that FI/FD is concerned with the student's need for structure, particularly in the learning of mathematics. FD students are assumed to profit from highly structured teaching, while FI students could be assumed to be able to structure the situation themselves. There is, however, a lack of consistent research results (for references see Leino, A-L. 1980). The case is different with CL: it has been repeatedly shown by the Canadian research-team that low CL students profit more from high structure and high CL students more from low structure or are less affected by variations in structure. It is to be remembered, though, that these two style variables are very much different from each other. FI/FD as measured by GEFT is a narrow conception of perception and information processing. In our study it only concerned visual field. CL represents a much wider area of personality involving information processing in the field of social relations.

In the following the student's preference for structure will be compared with his need for structure as determined by CL. Only those cases will be compared who clearly expressed their views. Attention will also be given to background information concerning their school achievements given in Appendix 3.

In mathematics the student's preference for structure is congruent with his need in the following Cases: 10, 11, 13, 14, 15, 16, and 17, who all expressed preference for structure and who also need it on the basis of their CL. Case 1 can also be considered congruent in terms of preference and need. She does not seem to need it, nor does she prefer it. It is noticeable that none of these cases represent very high achievements in mathematics, nor do the following two Cases (2 and 3), who can be called discrepant in terms of preference and need. The former (2) prefers structure, but may not need it and the latter (13) may need it but does not prefer it. The highest achievements are represented by the following Cases: 3, 4, 5, 6, 7, 8, and 9, none of whom gave a very definite answer but considered various aspects of the question, and all of whom, expect 3, were FI.

In foreign language the student's preference for structure is congruent with his need in the following Cases: 8, 11, 13, 15, 17, and 18 who all

prefer structure and need it too. They represent all the streams with varying school achievements in English. The next cases: 1, 4, and 6 represent A-stream and fairly high achievements. They can also be considered congruent in terms of preference and need: they do not obviously need much structure, nor do they prefer it. The following could be categorized as discrepant in terms of preference and need: 9, 10, 12, 14, and 16, who would need structure but prefer to do without it. They also represent all the streams with not very great success.

6.2. Structuring Acoustic Material

FI/FD does not only concern the visual area but can be seen in the auditory and tactile areas as well (e.g. Messick 1976). It has, however, been very difficult to get information concerning the testing instruments developed for these areas, for which reason the student's own evaluation of his style to structure acoustic material was resorted to.

Categorizing the answers was problematic, because students made so many reservations as to their way of listening, depending on whether they listen to a piece of music only once or several times, or whether they themselves play some instrument. The cases were categorized as follows:

Globally	Globally 1st time	Analytically in some cases	Analytically
Case 4,HCLFI	Case 2,HCL	Case 1,HCL	Case 7,FI
Case 6,FI	Case 5,HCLFI	Case 3,HCL	Case 8,FI
Case 11,LCL		Case 9,FILCL	(Case 10,LCL)
Case 12,LCL		Case 15,FD	
Case 13,FD		Case 18,FD	
Case 14,FD			
Case 16,FD			
Case 17,FD			

Of the cases enlisted in the category Globally the six first mentioned expressed their view quite clearly. Case 16 pointed out that it is easier that way and Case 17 admitted that he occasionally also listens more analytically. In the second category cases 2 and 5 listen analytically after the first time. In the third category listening is analytical if the band or orchestra includes the piano (Case 1), the cello (Case 9), a good drummer (Case 15), the drum and bass guitar (Case 18), or if the whole performance can be seen on TV (Case 3). Of the cases in the last category Case 7 has good earphones at home and usually listens analytically trying to figure out what the different instruments might be, though it is not always easy. Cases 8 and 10 pointed out that it is easy for them to listen analytically, if they want to do so. Case 10, however, does not usually want to do so.

Structuring acoustic material seems to be dependent on situational factors and also the students' interest in music and their hobbies (see further point 6.6.).

6.3. Learning Strategies of a Foreign Language Lesson

Learning strategies of a FL lesson were analysed in terms of the activities employed, the contents and criteria specified and the order of activities. There is some overlap between activities and criteria since the activity of learning by heart already includes a criterion; the category of criterion includes other kinds of criteria. The strategies used by students are as follows:

	A	B 1	B 2	C 1	C 2	D	E	F	G
Case 1,HCL	+	–	+	–	–	–	+	+	+
Case 2,HCL	+	–	+	+		+	+	+	+
Case 3,HCL	–	–	–	+		–	+	+	+
Case 4,HCLFI	+	+		+		–	+	+	+
Case 5,HCLFI	+	–	+	–	–	–	+	+	+
Case 6,FI	+	+		+		–	+	+	+
Case 7,FI	+	–	+	+		–	+	+	+
Case 8,FI	–	–	–	–	–	–	(+)	–	–
Case 9,FILCL	–	+		+		–	–	+	–
Case 10,LCL	(+)	+		–	–	–	(+)	+	–
Case 11,LCL	+	–	–	–	+	–	(+)	(+)	+
Case 12,LCL	+	+		–	–	–	–	+	–
Case 13,FD	(+)	+		?		–	+	–	+
Case 14,FD	(+)	+		(+)		–	+	+	+
Case 15,FD	+	+		–	+	–	+	+	+
Case 16,FD	+	+		+		–	+	+	–
Case 17,FD	–	–	–	+		–	(+)	+	–
Case 18,FD	+	–	+	+		–	+	+	+

A = reading aloud
B_1 = learning the lesson by heart
B_2 = learning part(s) of the lesson by heart
C_1 = writing the lesson
C_2 = writing part(s) of the lesson
D = movement
E = content specified
F = criterion specified
G = order of activities given
\+ = activity or theme present
(+) = activity or theme sometimes present or implied
– = activity or theme not present
? = uncertain

The contents mentioned were as follows: text or chapter, words, new grammar points, underlined passages or sentences, dialogues and exercises. The brackets in the content category indicate that the only thing specified was words. Criteria include a mention that one learns so well that one knows or remembers the lesson, or that one learns it thoroughly or completely. Case 11 said that after learning the lesson he asks himself questions and answers them. It was the researcher's interpretation that this is a kind of control of what the student has learned and thus implies a criterion. The order of activities is considered to be specified if the student mentioned what (s)he would do first and what after that. In Finnish everyday speech the word "first" ("eka") is used quite often by the schoolchildren in particular (personal observation) and would not necessarily, in every case, have to specify the order of activities.

The following points will still have to be made: Case 4 pointed out that she would not learn the lesson mechanically by heart but would do it in such a way that would help her understand the contents. Case 5 would only learn the difficult and basic sentences by heart. Case 7 would only read aloud when dad hears his lesson, he also pointed out that there would be no sense in learning the lesson by heart, word by word. As regards writing, Case 14 would write the lesson if he did not learn it by reading and Case 15 would write all the words on a piece of paper, if there were a test of words at school.

It is to be noted that high CL cases were very consistent in specifying the content, criteria and the order of activities in contrast to the low CL cases.

6.4. Social Element of Learning

The students' answers were analysed in terms of whether they thought they learned best alone, with somebody, or in a small group.

Alone		With Somebody	Small Group
Case 1,HCL	Case 11,LCL	Case 2,HCL	Case 16,FD
Case 4,HCLFI	Case 12,LCL	Case 3,HCL	Case 17,FD
Case 5,HCLFI	Case 13,FD	(Case 7,FD)	
Case 6,FI	Case 14,FD		
Case 8,FI	Case 15,FD		
Case 9,FILCL	Case 18,FD		
Case 10,LCL			

There were some additional comments as to the students' preferred way of learning: Case 4 told that people learn in different ways and emphasize different things; one can concentrate better when working alone. Case 8 also pointed out that it is easier to learn, if one works alone. Case 2 would like to have a pal, or a friend or a teacher to give advice particularly in mathematics. Case 3 was not quite sure but brought out an interesting view: "Perhaps there could be a pal. In a group it would be more difficult. Maybe more things would come out." Case 7 would like to learn with a friend, but not with many, because then it gets noisy. He said he also learns well alone.

As can be seen the preferred way of learning for the majority of cases is alone.

6.5. Environmental Elements of Learning

The students' answers were analysed in terms of the conditions considered necessary for their learning at home. The following categorization is based on this analysis:

	Silence	Background music	Clean room	At the desk	Lying on bed/floor	Free from duties	Relaxation	Nibbling/Chewing
Case 1,HCL	+		+	+		+		+
Case 2,HCL	+				+			+
Case 3,HCL	+			+		+	+	
Case 4,HCLFI	+	(+)	+	+	(+)			
Case 5,HCLFI	+			+				
Case 6,FI	+		+	+				
Case 7,FI	+				+		+	+
Case 8,FI		+		+				
Case 9,FILCL	+				+		+	
Case 10,LCL	+				+			
Case 11,LCL	+			+				
Case 12,LCL	+				+			+
Case 13,FD	+			+				
Case 14,FD	+			+				
Case 15,FD	+			+				
Case 16,FD	+	+		+				+
Case 17,FD	+				+			
Case 18,FD	+			+				

\+ = a condition considered necessary

(+) = a condition necessary depending on the circumstances

As can be seen from the table two of the cases concentrate best in silence but having background music. Case 4 emphasized the importance of complete silence; she only wants music when the other members of the family are at home because then the music prevents her from hearing what the others are talking about. Case 2 prefers silence also but she likes to beat a kind of rhytm with a pen or a pencil. It helps her learn foreign language words, in particular. Free from duties means that the student knows that she is free in the evening to do the homework. Knowledge that one has to go out later in the evening disturbs concentration (Cases 1 and 3). The importance of relaxation was mentioned by some: Case 3 considers it unnecessary to do homework when she is tired, Case 7 finds it relaxing to listen to a good record after coming home before starting to do homework, Case 9 often interrupts work to have short breaks and Case 4 does her homework lying down when she is tired. One of the Cases (14) mentioned that he can learn best when it is not very warm. In the learning style system developed by Dunn et al. (1979) temperature is an important environmental element, in addition to sound, light, and design.

6.6. Motivational Elements

The students' answers were analysed in terms of the extent they like school (integrative motivation), consider it important (instrumental motivation).

Like school very much	Like it	Consider school important	Do not like school	Had no opinion
Case 5,FI	Case 1,HCL	Case 5,HCLFI	Case 3,HCL	Case 10,LCL
	Case 4,HCLFI	Case 13,FD	Case 7,FI	
	Case 2,HCL	Case 14,FD	Case 8,FI	
		Case 15,FD	Case 9,FILCL	
		Case 17,FD	Case 11,LCL	
		Case 18,FD	Case 12,LCL	
			Case 16,FD	

The following points will have to be made: Of those who like school Cases 1 and 4 mentioned the stressful effect of having too many tests. The latter also emphasized the social importance of school: one can meet one's friends

there. Case 2 likes school and considers it important, too. Those who consider school important do either so because of its significance for future studies (Cases 14 and 18) or because one learns a lot there (Cases 13, 15, and 17) or in one case (5) because one would not know what to do without it. Of those who do not like school some, however, think "it is all right" (Cases 8 and 9) or consider it a necessity (Cases 11 and 16). Case 3 finds comprehensive school to be dull but expects senior secondary school to be better. Case 7 considers school to be "a bad system, it ought to be more liberal like evening classes, where everybody minds his own business."

A further point to be made is that of the four LCL Cases three did not like school and one had no opinion of it (or did not want to express it).

A further aspect of motivation consists of the students' hobbies and interests. The question of the validity of the answers (the Finnish word "harrastus" covers the meaning of those two English words) is problematic because students obviously had differing views as to what is to be considered a hobby or an interest, e.g. Case 4 told that she has no "real" hobbies or interests and then said that she likes to paint, knit, and read. Case 18 said that she does not have many hobbies, only the "usual" ones, and then mentioned listening to music. It is quite reasonable to assume that most young people listen to music, but all did not care to mention it as a hobby. (The fact that all the cases of this study do listen to music was also indicated by question number 5; none of the interviewees said that they did not listen to music.) In the same way only one case (15) mentioned "going out with friends" as a hobby, though quite obviously all the others do it, too. The question of validity remains open because of the differences of opinion of what is worthy of being mentioned as a hobby and what not. There were also some difficulties of categorizing the hobbies on account of the lack of a suitable framework. The following table is a categorization of the students' answers. The number of plus signs indicates the number of activities mentioned in the field. The future career expectations are also to be seen in the same table with a minus sign indicating the uncertainty of the choice.

Hobbies or interests

	Reading	Sports			Music	Painting	Handiwork	Technology	Photography	Movies	Nature	Future career expectations
		gymnastics	individual	group								
Case 1,HCL		++			++		+					actress -
Case 2,HCL	+	+								+		child care -
Case 3,HCL								++				designer of machines -
Case 4,HCLFI	+					+	+					airhostess -
Case 5,HCLFI		+			+++	+						child care
Case 6,FI	+											doctor
Case 7,FI										+	+++	-
Case 8,FI												electronician
Case 9,FILCL					++							piano tuner
Case 10,LCL												-
Case 11,LCL				+								journalist or statistician
Case 12,LCL				+								-
Case 13,FD												nurse
Case 14,FD			+	+								many possibilities
Case 15,FD			++									hairdresser
Case 16,FD				+								electrician -
Case 17,FD			++					+				graphic artist or fine mechanics
Case 18,FD					+							beautician

+ = number of activities mentioned

- = uncertain about career expectation

Bearing in mind what was previously said about the validity, the following points need to be made: Case 1 participates in gymnastics and also leads a gym group herself; jazz-ballet was included in gymnastics (Case 2); technology includes micro-computering equipments and programming (Case 3) as well as miniature models of cars and interest in motor-racing (Case 17); nature includes fishing, fishing competitions (also in winter time when the hook and line are used to catch fish dwelling near the bottom of the lake which is frozen over), bird watching, and participation in a course to become a leader of a bird club (Case 7); Case 5 plays the piano, the violin and takes singing lessons; Case 9 plays the cello and the piano; Case 8 has all kinds of hobbies but did not specify any; Case 10 had no special hobbies and Case 13 said she had practically no hobbies.

As to the career expectations Case 12 had no idea yet; Cases 2 and 7 want to go to senior secondary school first and decide after that and Case 10 wants to get a job with a good salary. The many possibilities of Case 14 include becoming an auto mechanic, a fireman or policeman. Case 16 has the handicap of being colour-blind, which prevents him from becoming an electrician; he will also have to go to senior secondary school and decide afterwards. The original plan of Case 9 was to become a goldsmith but he considers his chances so small that he is not even going to try. Case 4 used to want to become a teacher but presently considers it a boring job because teachers always have to teach the same things. Case 5 used to want to become a doctor but, because everybody does so at present, she has changed her plans.

6.7. Responsibility

The students' answers were analysed in terms of how often they said they neglect their homework. The following table shows the results:

almost always	often	seldom	never
Case 16,FD	Case 1,HCL	Case 10,LCL	Case 6,FI	Case 5,HCLFI
	Case 2,HCL	Case 11,LCL	Case 8,FI	Case 13,FD
	Case 3,HCL	Case 12,LCL		Case 15,FD
	Case 4,HCLFI	Case 14,FD		Case 18,FD
	Case 7,FI	Case 17,FD		
	Case 9,FILCL			

The following reservations have to be made: Case 2 neglects the homework that is not important; Case 4 does not do her homework when she is in a hurry; Case 7 neglects certain homework, but thinks that mathematics must always be done; Cases 9, 11, and 16 do the written exercises and tasks, even though they neglect their homework otherwise.

It is obvious that the interviewer should have probed more throughly into this area to find out why so many cases neglect their homework often. One plausible explanation is that there may be cases who try to do their homework and learn their tasks by listening very carefully during the lessons while still at school. In that case there would not be much left to do at home.

6.8. Task Performance Strategies

Performances on tasks 1, 2, and 3 were grouped together as well as performances on tasks 4 and 5. The former tasks are similar in being situational, in which more than one performance can be grammatically correct and/or acceptable. The latter are similar in the sense that in both of them the student is required to ask a question. In these two groups of tasks the students' explanations of their strategies tended to be similar or they did not bother to explain again but said that they did the new task in the same way as they had done the preceding one. The term strategy means student's explanation of what (s)he is thinking and trying to do.

The students' explanations vary a lot in complex ty and in tasks 1, 2, and 3 some students were not able to give any explanation of what they were trying to do (, which, in fact, is in accordance with findings concerning mathematical problem solving. Students low in ability have not been able to describe their strategies at all, Leino, J. 1981).

The following table indicates which students were able to perform the tasks and explain the strategy they used. A table concerning the grammatical correctness of the student performance is given in Appendix 4. As can be seen only one student was able to perform all the tasks correctly. Had the criteria of acceptability and comprehensibility been applied the results would have been different. These criteria are, however, rather subjective being dependent on the person who "accepts" or "comprehends" what the other person says. From the viewpoint of communication these criteria are more important than the criterion of grammaticality, e.g. the dropping of the -s of the third person singular in the present tense, a common mistake among students, has hardly any informational load at all, and consequently does not prevent communication. Applying the communicative cr eria was not, however, considered necessary, bec se it is the process that is used to arrive at the result, not the result in itself, that is interesting. The table in Appendix 4 is only given as background information.

Task Performance Strategies

	Performance 1.	2.	3.	Strategy	Performance 4.	5.	Strategy
Case 1,HCL	+	+	+	+	+	+	+
Case 2,HCL	-	+	+	(-)	-	-	+
Case 3,HCL	+	+	+	+	+	+	+
Case 4,HCLFI	+	+	+	+	+	+	+
Case 5,HCLFI	+	+	+	+	+	+	+
Case 6,FI	+	+	+	+	+	+	+
Case 7,FI	-	-	-	+	+	+	+
Case 8,FI	+	-	-	(-)	-	+	+
Case 9,FILCL	+	-	+	+	+	+	+
Case 10,LCL	-	-	+	-	+	+	(-)
Case 11,LCL	+	+	+	+	+	+	+
Case 12,LCL	-	-	-	-	-	-	+
Case 13,FD	-	-	-	-	-	-	+
Case 14,FD	+	+	+	+	+	+	+
Case 15,FD	-	-	-	+	-	+	+
Case 16,FD	+	-	+	(-)	+	+	+
Case 17,FD	+	+	+	+	+	+	+
Case 18,FD	+	+	+	+	-	+	+

\+ = the task performed or strategy explained

\- = the task not performed or strategy not explained

(-) = difficulties in explaining the strategy

6.8.1. Tasks 1, 2, and 3

The first three tasks will be dealt with in the following. Two of the cases (7 and 15) explained the strategy they would use without, however, performing the tasks. The former expanded the context of all the tasks in Finnish, and said, after being asked at the first task, that he has an idea how to do it. He explained that he first thinks about the words he is going to use, then the word-order and prepositions. At task 3 he said that he would do it the same way as the previous ones: first think it in Finnish and then find the words. The latter also said she would first think what the words are in English and try to find them, after which she would make up the sentence. She always translates.

Of the other students who explained their strategy the following group performed the tasks very quickly and fluently, almost automatically, it seemed to the interviewer:

Case 1 said she did it (task 1) "quite directly... from Finnish into English." When asked about the second task, she gave a grammatical explanation of the utterance she had made. In the third task she "took directly" the different elements without having to think further.

Case 3 performed the first task thinking about the different elements of the utterance, said about the second that it would come quite naturally (it did), and performed the third task saying that it "just came, one did not have to think about it."

Case 4 thought aloud the words of the first task and performed it very quickly. In the second task she wondered how to begin the utterance; she said she would have to think it first in Finnish and then translate and add an auxiliary. At the third task she only said that the utterance just came to her mind, she did not have to think about it.

Case 5 performed the tasks quickly and correctly, expanded the context of the first task in Finnish, and performed the second task by planning how to say it nicely and politely in English without using Finnish. She "thought the third task immediately in English."

The following group of cases is different from the previous: Their performances did not seem so quick and easy. They had some difficulties with the tasks and their strategies seem, to a great extent, to be dependent on individual words.

Case 6 thought first about the words she would have to use in task 1 and after that the prepositions which, as she pointed out, are a little difficult for her; she is never really sure about them. At the second task she thought about the form the utterance should have; she wondered whether it should be in the conditional. Being asked whether she first thought the utterance in Finnish she said yes. She performed the third task rather quickly but said immediately afterwards that it is not correct. Being asked how she knows it she said it sounded clumsy. This was the only one of the cases who tried to monitor her own performance.

Case 9 thought all the words separately, did not find words for the second task, and said he is rather poor at English. He performed the third task rather quickly (except for the word bed, which he had forgotten) explaining that there were no special words in it.

Case 11 also thought about the words, beginning from the most difficult ones, and considered what would sound the most sensible thing to say. He performed the third task quickly "directly from the words."
Case 14 tried to think the English words and join them together; he said it did not matter even if they were wrong as long as an Englishman would understand them.
Case 17 looked for words one at a time, tried to find the right form and then make an utterance.
Case 18 thought first about the English words and then the structure, and then how to put the words into it to make the final utterance.

The following cases had difficulties with the tasks as well as explaining the strategy. They came up with an explanation only after specific questions asked by the interviewer. The last two of this group were rather shy and quiet.
Case 2 said she wouldn't know even in Finnish what to say, which made the interviewer ask if she would have to have an exact Finnish sentence, which she could say in English. She admitted that she would "absolutely" need one. Given a Finnish sentence (task 2) she started looking for words, wanted to know what "kuunnella" is in English; after being told that, she made a sentence that was hardly comprehensible. She tried to perform the last task word for word and ended up by telling that she was completely mixed up.
Case 8 said that it was rather difficult. After being asked he admitted that he was thinking of the words; after being asked again he admitted he was thinking it in Finnish after which he would try to translate.
Case 16 had similar difficulties. After being asked he also admitted that he was thinking about the words. He did not understand the second task at all, not even after it was clarified by the interviewer. In the third task he was also trying to remember words to "put them in order to make a sensible sentence."

The last of the cases, who did not come up with an explanation of the strategy, even after being asked specific questions seemed rather shy, reserved, anxious and perhaps a little unco-operative:
Case 10 explained briefly what he would say in Finnish but said he cannot explain it any further. He performed the third task correctly, however.
Case 12 had difficulties with the tasks but was not able to specify what they were. After being questioned admitted that she has forgotten the words.

Case 13. The above difficulties concerned even this case. She did not understand that task and said that she "can't really say anything in English, words ... or anything."

6.8.2. Tasks 4 and 5

Tasks 4 and 5 were different from the previous, situational tasks since in these tasks students were expected to ask questions to go with the answers that were given. Task four is obviously more difficult for some pupils since any question beginning with do can go with it. Task five, on the other hand, contains all the elements necessary in the answer (=question) except for the auxiliary verb. All students were not, however, capable of making use of what was given in the task. Yet, all were capable of somehow explaining the strategy they would use, even though they may not have been able to perform the tasks. Cases like this were the following:

Case 2 made a Finnish question and said that there has been a long sentence before the answer. After being asked if she could give one, she said another Finnish question. She tried to translate the answer given in task five into Finnish. She did not remember the meaning of the word when, the only thing that came to her mind was mitä, which would have changed the whole thing as she said. She tried to pick words from the answer; she always translates except when the text is very familiar.

Case 12 did not quite know what to do. After being asked he said he was thinking what the answer is in Finnish, and added that he does not know the words, and did not know what words to ask the interviewer. He tried to translate task 5 and said he understood it. A Finnish question would have helped him but he had no idea what the Finnish question would be like. He always thinks in Finnish.

Case 13 gave a question and the answer in Finnish and said that she always thinks in Finnish. At task five she wanted to know the meaning of when, after being told that, she made another question in Finnish. She had also translated the answer in Finnish. The interviewer had the impression that she did not quite know what the tasks were about.

The following cases performed these tasks the way they had performed the first three tasks: quickly, with apparent ease and without hesitation as if automatically. The same concerns also their explanations of the strategies they had used.

Case 1 performed the two tasks correctly. In the former task she explained that there must be do and do you like gymnastics was the first to come to her mind (gymnastics is her hobby). In the latter task Saturday evening was a hint that when must be used and because it is a question does and inverted word-order will also have to be used. She does not have to translate but sees right away what the text means. If there are new words she will have to think about them.

Case 3 also performed the two tasks correctly. In the former task he explained why his question concerned drinking tea. In the latter he used when because the answer contained Saturday evening. He did not have to translate but knew intuitively what the answer meant. He only translates if there are many strange words.

Case 4 thought aloud (in Finnish), first the answer, then the question she would like to ask, which will contain first the auxiliary verb and then the main verb. After that she asked her question. In the second task she translated the answer word for word, noticed the tense of the verb but did not know the meaning of as. She said she would ask a question concerning Saturday. She translates always except if the text is so easy that she understands it automatically.

Case 5 performed the two tasks very fluently and explained that the former question must have do because the answer contains it. The question must also be such as can be answered affirmatively. The second question must have when because of Saturday evening, and because he works then as a disc-jockey, it must be his evening off (her question concerned his evening off). She does not usually translate.

Case 7 would also belong to the previously mentioned group except for the fact that he did not perform the first three tasks even though he explained quite adequately the strategy he would use. It is the writer's impression that he may have found them too easy (and perhaps trivial). He performed the last two tasks quickly, fluently, and correctly. The former question just "popped into" his mind because music had been the topic just a few minutes ago (his question concerned pop-music). The latter question must have when because of Saturday evening; it must have does because of he and after that disco. He did not have to think a lot. He did not have to translate to perform the tasks, but otherwise he often does. If there is

a strange word he translates the sentence around it and reasons the meaning of the word.

Case 6 is different from the previous group because her performance and explanation were not quite so quick, fluent and unhesitating as those of the previous group. She thought aloud the former task, said that the question should begin with do, then after a pause said that she is thinking about the content of the question. She said that it is difficult because it is in the present tense. She wanted to find some activity of which to ask the question. The latter task was easier; it must have does because it is the third person singular, the present tense, and the rest is available in the answer. She did not translate now, she only translates if it is a difficult sentence.

The following cases resorted explicitly and right away to Finnish, they had difficulties with the task as well as with explaining their strategy:

Case 8 performed the former task by forming a Finnish question, which he did not want to say in English; in the latter task he picked up words directly from the answer to make a question. He often translates.

Case 11 found the former task difficult, performed it, though, and said it was about a record because music had been a topic a short while ago. He performed the latter task by thinking about the Finnish meaning of the different words. He always translates.

Case 14 explained why his question concerned ice-cream in the former task. He performed the latter task by means of translation. He always translates.

Case 15 thought about the meaning of the answer, after which he said he would ask a question to go with the answer (did not do so, however). He performed the latter task by first translating the answer into Finnish, then by thinking aloud the question in Finnish and finally by translating it into English.

Cases 16 and 10 also performed the tasks by means of Finnish. They did not volunteer much information on their strategies.

Case 18 thought about the "structure" of the former task, had difficulties in performing it, and after being asked, admitted that he was thinking of what kind of question would go with the answer, and that he tried to translate. He performed the latter task by translating the answer into Finnish and using its words in the question.

The last of the cases 9 and 17 had also difficulties with the tasks, but they are different from the previous cases, the former by not depending entirely on Finnish and the latter by giving a lengthy explanation of his strategies.

Case 9 tried to find a Finnish question to the former answer and wanted to begin his (English) answer with do. He performed the task and wanted to discover how to say it grammatically. In the latter task he wanted to find the right order for the words after the question word, and leave out the rest given in the answer. He did not have to translate because he could perform the task otherwise.

Case 17 tried two different questions and "explained" why they could not be suitable for the first answer. The fact that the answer was in the present tense made it difficult for him. He tried to ask the question the way a Finn would do it and then, how an Englishman would say it. He said his performance was not satisfactory. He read the latter task in English, translated it into Finnish, thought about the words separately, and came up with a question, and said in the end that he was completely exhausted. He also told the interviewer that he always translates because he is a C-stream student.

The performance strategies of the cases were reported individually because the explanations they gave were different. This may mean that the strategies they used were different, or - more likely - that their verbalisations of the strategies were different, although the strategies of at least some of them may have been similar. This question concerns the validity of the students' descriptions, and there is no means of empirically solving the problem at present.

There is no clearly emerging pattern of relationships between the performance strategies and the styles (CL and FI/FD). Those, however, who were characterized by quick, unhesitating, and apparently automatic performance were HCL cases (1, 3, 4, and 5). The only student having a rather low CL but, still, characterized by a performance resembling that of the above mentioned students was Case 7, a bright boy (judging by his school grades) who scored the maximum on GEFT, but who did not bother to perform the first three tasks but only explained how he would do them. Case 2 also belonged to the HCL group; thus one could have expected from her a performance similar to that of the previously mentioned cases. She had,

however, difficulties with the tasks and explanations. According to the information given by the school psychologist, however, she had had difficulties with her relationship with home as well as peers. Difficulties may have been caused by early puberty, which obviously caused embarrassment in the whole class. She even wanted to get to another school or another class. Her problems, however, cleared up as time passed on, which is also confirmed by high CL index. It is quite possible that the effect of her temporary difficulties may be reflected on her school performances longer than on her interpersonal relationships. (Judging by her school grades she is a fairly "good" student.) One of the top performers at school is Case 6, who had a fairly high CL and who scored maximum on GEFT. She took time to perform the tasks and explain her strategy very thoroughly, and admitted that she had some difficulties. She is very determined, purposeful in her studies.

The performance strategies of most of the other cases were centered on individual words: how to remember them and join them together, as well as translation. As was already mentioned the last two tasks were different from the first tasks, since in them the students were expected to form questions to go with the answers already given, which may have made it easier for them to explain how they would perform the tasks. Everybody was able to give some kind of explanation, even a short one. The cases who were hardly able (or willing) to give any explanation concerning the performance of the first three tasks were 10, 12, and 13, all low CL students and, consequently, according to the theory, in need of much structure. With the expectation of 13, they represent rather low school achievements, with Case 12 representing the lowest of the whole group. He has also had some behavior problems but recently shown signs of positive development (school psychologist).

Case 17 was exceptional in trying to analyse his own performance very thoroughly in the latter two tasks. He almost systematically tried different questions that might go with the given answers. His attempt at analysis was very obvious and very much different from that of any of the other cases. According to the information given by the school psychologist his schoolwork has been followed by parents who have been in contact with his teachers. When he was in the fourth grade his mother took him to the children's hospital to be examined. It was stated that

he has special difficulties in reading, writing and arithmetic. He has received special education in these subjects and also private tuition, which may be the reason for his ability and willingness to try to analyse his own performance. He is positive and active but lacks perseverance and is rather shy. He has always been in close contact with his twin brother and does not have many other peer relationships. The twin brother scored higher GEFT and was consequently not included as one of the subjects to be interviewed, though the school success of the boys is not much different.

6.9. Background Information

Background information is available, as already mentioned, in Appendix 3, which shows the school achievements of the cases as rated by teachers and family background in terms of father's profession.

The grades given by the teachers are from the students' final school report, spring 1981, which they got when graduating from comprehensive school. The rating scale used in our school varies between 4 and 10. The following grades were selected as being the most relevant: conduct, which is a general indicator of the student's behavior at school (during the past few years behavior was not evaluated at all but, after discipline problems increased, the school authorities decided to have it back in the reports), history, which is studied by every student, native language, because it is the most important of all for the student's development, and mathematics and foreign language, because they differ from many other subjects by being cumulative in nature. Letters A, B, and C after the grade indicate the different streams that the students had chosen. C-stream is considered to be the most basic of all, while A-stream is most varied as to the objectives and contents of instruction. B-stream falls in between the two. Music and art were included as subjects between which the students were able to make a choice. Grade Point Average is a general indicator of scool success, it covers all the subjects that the student has studied in comprehensive school.

The school psychologist was also interviewed (by Puurula) in August 1981, but she only had additional information on cases 2, 17, already dealt with,

and 1, who had been worried about the discipline problems in her class. She had gone to see the school psychologist with some friends of hers to talk about the problems caused by one of the troublemakers of her class. She is very positive and outgoing. One could have expected more information on cases such as 10, 11, and 12, for example, who all seemed very anxious, shy and reserved and who were not doing too well at school. The additional information concerning case 12, previously referred to, came from the guidance counselor.

6.10. General Description of the Cases

In order to give the results a more tangible form an overview of the situation was formed by gathering the information obtained. This was accomplished by giving a rough quantification to the qualitative variables, which makes it possible to describe the cases in terms of their profiles. It is to be noted that performing the tasks and explaining the strategy seemed to go hand in hand, for which reason these two aspects were combined, and a rough quantification formed in terms of the apparent ease it took place. The symbols and the quantifications are as follows:

SM = structure mathematics
SF = structure foreign language

1 = structure
2 = varies
3 = no structure

SA = structure acoustic material

1 = analytical
2 = varies
3 = global

LS = learning strategies

1 = 1-3 activities mentioned
2 = 4-5 " "
3 = 6-7 " "

SE = social element

1 = alone
2 = with somebody
3 = small group

EE = environmental elements

1 = 2 elements mentioned
2 = 3 " "
3 = 4-5 " "

Mo = motivation

1 = do not like or no opinion
2 = consider school important
3 = like it

Ho = hobbies

1 = 0-1 hobbies mentioned
2 = 2-3 " "
3 = 4-5 " "

Re = responsibility

1 = always, often neglects homework
2 = seldom " "
3 = never " "

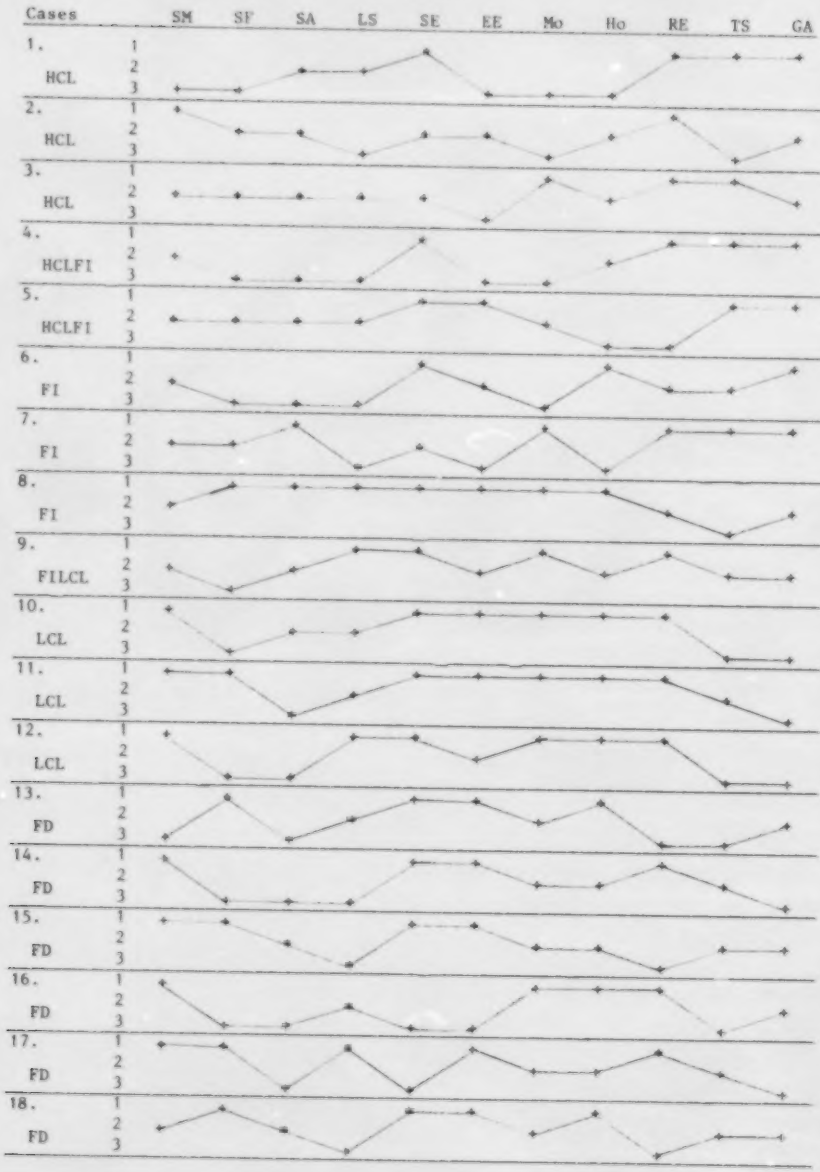
TS = task performance strategies

1 = easy
2 = varies
3 = difficult

GA = Grade Point Average

1 = the top five
2 = the rest
3 = the lowest five

General Description of the Cases



Estimating the similarity of the profiles is very problematic (see Leino, J. 1975, 22-25). In this study the squared Euclidean distances in the space of the variables were computed between the profiles. The following is a table of these distances:

Table 1. Squared Euclidean Distances between the Profiles in the Cases

1																
2	14															
3	9	11														
4	4	10	9													
5	7	15	12	13												
6	10	8	13	4	11											
7	9	13	4	11	12	17										
8	25	15	14	27	14	19	20									
9	10	12	5	12	11	12	11	9								
10	24	10	13	21	19	14	21	9	6							
11	26	12	11	20	17	16	21	9	10	6						
12	23	13	11	19	22	11	24	12	5	3	7					
13	23	15	18	21	12	11	26	8	15	15	11	15				
14	17	7	12	11	14	9	18	18	9	5	7	8	16			
15	21	9	14	17	6	11	16	10	15	13	9	18	8	11		
16	22	10	9	16	25	14	17	19	10	10	14	7	21	13	22	
17	25	11	12	23	18	21	22	14	13	13	7	12	16	12	14	13
18	21	11	14	17	8	9	18	8	15	13	9	18	4	12	2	21	16

The types of cases to be presented next were arrived at by means of McQuitty's method of manually estimating clusters (1957, 1964). Factor-analysis would quite probably have yielded the same clusters but it was not considered justified in view of the smallness of the sample. The clusters or the types of cases are as follows:

I: cases 15, 18, 5, 13, 8

II: cases 12, 10, 11, 14, 9

III: cases 7, 3

IV: cases 6, 4, 1

Cases 2, 16, and 17 did not fit in any of the clusters being quite dissimilar from the rest of the cases. The following is a graphic representation based on the means of the clusters of the cases:

Table 2. Mean Profiles of the Main Types of Cases

It is interesting to note that the clusters of types were not formed on the basis of the background information (school achievements or family background). Nor were they formed on the basis of the styles that had been tested (CL and FI/FD), which only shows that a limited area of the students' personality was investigated. There are many styles and other factors left outside this study. An interesting point to note, however, is the fact that type II, which represents the lowest achievements, contains no cases with HCL. This cluster is characterized by preference for high structure in mathematics, low in FL, global listening, few activities in learning strategies, preference for working alone, few demands placed on environment conductive to learning, little motivation, few hobbies, frequent neglect of homework and difficulties in task performance. The highest achievements are represented by type IV containing one case with HCL, one FI, and one combining the two (HCLFI). This cluster is characterized by preference for low structure in mathematics, and even lower in FL, global listening, a number of activities in learning strategies, preference for working alone, a number of demands placed on environment conductive to learning, high motivation, an average number of hobbies, neglect of homework and ease in task performance.

A verbal description of types I and III will not be given here because it is easily to be seen in the graphic representation. (It was considered more informative to deal with the two contrasting types.) A few points of interest will, however, be summarised concerning the biggest differences and similarities between the types.

The differences concern preference for structure in FL, number of demands placed on environment conductive to learning, motivation, responsibility and also the ease of task performance. The greatest similarity concerns the number of activities used to describe learning strategy. A further

point of interest concerns social element: all the other types expressed a preference for working alone except type III, consisting of two cases (FI and HCL), who prefer to work with somebody. Of the three cases who did not fit in any of the clusters Case 2 (HCL) wants to work with somebody and Cases 16 (FD) and 17 (FD) prefer a small group. Case 2 was the one who had problems with early puberty and Case 17 the one with special learning problems and a close attachment to his twin brother. Case 16 seemed very shy and quiet to the interviewer, his school success represents the average level; he is so good at his hobby (ping-pong) that he won two bronze medals in Finnish championship competitions. His color-blindness prevents him from choosing the career he would like.

The information about the cases represents a part of the kind of information that would be necessary, if we in Finland are to follow the trend noticeable elsewhere, which would mean replacing the old notion of fitting learners to standard programs by the new notion of designing programs to fit learners (see e.g. Fantini 1980). Consequently this study can also be regarded as an example of the kind of information-gathering necessary for individualization. The idea of complete individualization is not, however, realistic: except for occasional individualization students will always have to be taught in groups in our school system. Therefore individualization will mainly have to be accomplished in terms of small groups. For this kind of "small-group individualization" the types of cases can give some guidance.

Type IV obviously offers no special problems; the teacher will have to see that the positive development continues. This type can be given freedom of choice concerning tasks, activities, and the use of resources. They can also profit from group work, though they may not like it, if they are very much achievement-oriented. Type II represents fairly low CL and is consequently in need of much structure to facilitate learning. In mathemetics this type prefers it too, unlike in FL where it would also be necessary. Because this type uses very few learning activities at home, personal guidance as to how to do the homework would be necessary. To raise their motivation they should be told exactly what is expected of them, and be given immediate feedback, much assurance, attention, and praise. Activities should be varied and

include physical activity too, if possible. Teaching should be made concrete by means of pictures and things. This type does not profit from group work. For long-term development, however, the degree of structure should be lowered but not until the students are ready for it (see Hunt 1979). Type I, characterised by preference for structure in FL, the fewest demands made on environment conductive to learning, a number of hobbies, and responsibility, varies in terms of CL. Their need of structure is, at any rate, smaller than that of type II, since none of the cases with the lowest indexes belong to this cluster. (On the other hand, one of the highest does.) It seems that this type needs building up courage and self-confidence through success-oriented and non-threatening experiences, for example. Some seemed rather shy and frightened in the interview situation and, besides, if a student hardly ever e.g. dares to neglect his homework, it makes school very stressing and cannot be good for the development of personality.

So far it has not been relevant to speak about the sex of the cases, particularly when the pilot testing of GEFT did not reveal any such differences on the Finnish sample (Leino, A-L. 1980). At this point, however, the question is relevant since type III consists of only boys, while its equivalent at many points, type IV consists of only girls. Type III is close to type IV in terms of the number of activities in learning strategies, demands placed on environment conductive to learning, hobbies, responsibility and school achievements. The striking difference concerns motivation, this type has the lowest motivation, but there is also optimism: they expect senior secondary school or evening classes to be better than comprehensive school. They are also the most analytical listeners and want to work with somebody. In terms of CL the two types are quite close to each other; consequently teaching situations could be structured in approximately the same way.

7. Discussion

The purpose of the study was to complement the information of the pilot study at individual level. Complementary information concerned various aspects of structure, social and environmental elements of learning, motivation, and responsibility as well as specific learning and performance strategies. The individuals selected to be interviewed represented extreme groups of CL and FI/FD.

The results were in accordance with CL theory: in interview situations the HCL cases considered different aspects of the questions, saw several alternatives, did not often give an either-or answer, and verbalised and specified more their responses than did the LCL cases. (It is to be remembered that there were many other cases with rather low CL index, in addition to those selected on the basis of LCL. These cases were selected on the basis of their FI/FD index.) This study gave additional confirmation of PCM as being an effective instrument that can be employed to get information about students' personality development. It is quick and easy to use compared to such methods as having students e.g. write compositions and analysing them, which has recently been used by Takala (1981).

The results concerning FI/FD were not very clear; in some case, however, the career expectations of these cases were in agreement with previous results, with FD:s favoring careers involving interaction with people and FI:s those in which analytical skills are required. In some cases FD:s also preferred group-work to working alone. FI/FD as measured by visual GEFT was not clearly related to structuring acoustic material; two FI cases, however, were analytical listeners.

As regards task performance strategies, many cases, notably those with rather low CL, were hardly able to give any description at all. (It is interesting to note that previous research in the field FL has mainly concerned successful language learners, e.g. Naiman et al. 1978 and Nolan 1981.) It also seemed that the poorer the performance of the cases the more easily they resorted to the use of native language, which is in accordance with Ausubel's learning theory. Those who were good at performing the tasks either explaining their strategy in gram-

matical terms or said that "it just came" or "popped" into their minds. It seems to the writer that achieving some kind of fluency in FL in such circumstances as are prevailing in our schools is an outcome of hard work and practice up to the point of automatism rather than being a proof of what Krashen would call "acquisition" of language.

With soft-data approaches the questions of reliability and validity are always problematic because the ways of getting quantitative information about them are limited. Concerning the reliability of the students' answers, it is the writer's view that the interviews were conducted in a non-threatening and friendly atmosphere. Thus there is no reason to assume that the students would deliberately have given false information. Questions concerning the validity of the answers were already previously touched upon in connection with hobbies and task performance strategies. As to the content validity of the structured interview itself, it can be considered satisfactory bearing in mind, on one hand that the areas included were based on relevant literature and previous research, and on the other hand, that many cognitive styles were omitted for reasons previously given. Concerning the reliability of the interviewer's note-taking in the interview situations there are possible sources of error resulting from faulty perception or poor memory or unconscious biases. Having other person analyse the interview protocols would have given some information about the reliability of the content analysis. This was, however, prevented by the resources available for the study.

As regards the generalizability of the results one has to be careful in view of the nature of the study, which is first of all to be considered as an example of the kind of data-gathering necessary for individualisation or "small-group individualisation" of instruction. It is also a preliminary research with the purpose of pinpointing further problems in an area that has aroused the interest of very few researchers in Finland untill quite recently. Specific questions aroused by this study concern e.g. the discrepancy between students' need and preference for structure and its effect (through motivation) on learning, immediate learning as well as long-term development of personality; the learning strategies of other school subjects besides FL; the role of group-work (in view of the fact that the majority prefer individual work); the effect of physical environment on learning; the quality and role of

assignments (in view of the fact that the ma jority neglect them). Before considering any of these specific questions or starting empirical experiments previously outlined it is the writer's intention to pilot test the cognitive styles instruments used by Letteri (1980). Dimensions measured by them could probably be used as further specifications of component P.

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Appendix 1

School _____

Name _____

Date _____

Time _____

1. How do you like school?

2. What hobbies do you have outside school?

3. What would you like to become after school?

4. In what way do you think you learn best in school: working all by youself, or with a friend or in a small group?

5. When you listen to music is it easy for you to hear the sound of some individual instrument or is it easier for you to listen to music globally?

6. When the teacher gives you some task, e.g. some mathematical problem, do you think it is better for you to be told exactly and in detail what you should do, or do you think it is better for you to start doing the problem on your own without detailed instructions?

7. When you are given a small paper to write in the foreign language do you want to be told exactly what to write or do you want to do it completely on your own?

8. How would you study your English homework when you want to make sure that you really know it? Let us suppose that you are going to take a trip abroad by plane which will be highjacked. Your English homework represents the kind of English that will help you to cope with this unexpected situation. How would you study?

- would you read aloud?
- would you try to learn it by heart?
- would you write it on a piece of paper?
- would you walk around then trying to learn it?

9. What kind of things help you concentrate on your homework?
   - silence?
   - chewing the gum or nibbling something at the same time?
   - lying on the bed?

10. Do you often neglect your homework?

Appendix 2

Next I will give you some small tasks that concern the English language. At each task I want you to think aloud and tell me how you try to perform the tasks. It does not matter whether you perform them correctly or not. All I'm interested in is how you do them.

1. How would you tell your English friend that some old relative of yours e.g. your grandmother never watches Soap.

2. How would you suggest this same friend of yours listening to your new records?

3. You are in England and you fall ill. How do you ask your doctor how long you must stay in bed?

4. What kind of question would you ask to go with the following answer: "Yes, I do".

5. What kind of question would you ask to go with this answer: "He works in a disco as a disc-jockey on Saturday evenings", begin your question with the word "when".

Background Information

Appendix 3

Cases		1	2	3	4	5	6	7	8	9	10	11	Father's profession
1.	girl	2.8	13	9	9	8	8 A	7 B	10	10		8.4	prison guide
2.	girl	2.5	8	9	8	7	7 B	6 B	8	8		7,5	painter
3.	boy	2.1	12	9	8	7	8 A	8 A	8	8		7.8	?
4.	girl	3.0	18	9	8	9	7 A	8 A	7		9	8.3	graduate from business school
5.	girl	2.6	18	10	9	9	10 A	10 A	8		9	9.5	clergyman
6.	girl	1.8	18	10	10	9	8 A	10 A	9		9	9.3	stock keeper
7.	boy	1.0	18	10	10	9	9 A	8 A	9	9		9.3	Master of Political Science
8.	boy	1.0	18	9	7	8	7 A	8 A	6		8	7.3	carpenter
9.	boy	0.1	18	9	9	7	6 A	9 A	8		7	7.5	teacher
10.	boy	0.3	16	7	7	8	6 B	6 B	6		5	6.5	concrete worker
11.	boy	0.3	10	9	7	6	6 B	7 B	8	6		6.3	engineer
12.	boy	0.3	14	6	6	6	6 C	6 C	10		5	5.9	trainman
13.	girl	1.0	3	9	8	8	9 B	6 B	9		8	7.4	stockman
14.	boy	1.1	2	9	6	6	7 C	7 C	8		7	6.3	manager
15.	girl	1.3	3	9	7	7	6 A	6 B	10		8	7.3	metal worker
16.	boy	1.1	2	10	7	8	8 B	7 B	10		8	7.6	master builder
17.	boy	1.0	1	10	6	7	8 C	6 C	8		9	7.0	merchant
18.	girl	1.3	2	9	8	7	6 B	7 B	9		8	7.7	salesman

1 = PCM
2 = GEFT
3 = Conduct
4 = Native Language
5 = History
6 = Foreign Language
7 = Mathematics
8 = Physical Exercise
9 = Music
10 = Art
11 = GPA
? = no information

Appendix 4

Correctness of performance

	Tasks				
	1.	2.	3.	4.	5.
Case 1.	-	+	-	+	+
Case 2.		-	-		
Case 3.	+	+	+	+	+
Case 4.	+	+	-	+	-
Case 5.	+	+	+	+	-
Case 6.	-	+	-	-	+
Case 7.				+	+
Case 8.	-				-
Case 9.	-		-	+	-
Case 10.			+	-	-
Case 11	-	-	-	-	-
Case 12.					
Case 13.					
Case 14.	-	-	-	+	-
Case 15.				-	-
Case 16.	-		-	-	-
Case 17.	-	+	-	-	-
Case 18.	-	-	-		-

\+ = correct performance

\- = incorrect performance

a blank = no performance in English

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